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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/527,558	03/16/2000	Rolf W. Pfirrmann	1194-153	2302

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EXAMINER	
MAIER, LEIGH C	
ART UNIT	**PAPER NUMBER**
1623	17

DATE MAILED: 06/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/527,558	Pfirrmann
Examiner	**Art Unit**
Leigh Maier	1623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Apr 18, 2002*

2a) ☐ This action is **FINAL.** 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1-15 and 21-23* is/are pending in the applica

4a) Of the above, claim(s) *21-23* is/are withdrawn from considera

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1-15* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirem

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Status of the Claims

Claims 1-15 and 21-23 are pending. Claims 21-23 have been withdrawn from consideration.

Prosecution is hereby reopened. A detailed action on the merits follows.

Claim Objections

Claims 9-12 are objected to under 37 CFR 1.75 as being a substantial duplicate of claims 5-8. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. It is not clear how "injecting a solution into a liquid delivery system and then removing the solution from a liquid delivery system" differs from "flushing" a liquid delivery system with a solution.

Claim Rejections - 35 U.S.C. § 112

Claims 1-15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites ". . . said contacting steps being repeated between delivery of liquids to said patient." It is not clear whether the "repeating" applies to Method B) only or to both Method A) *and* Method B).

It appears that a distinction is being made between the compositions termed "the liquid" (Method A) and "the solution" (Method B) as claims 2-4 recite the "solution *or* liquid." (Emphasis added) However, claim 5 recites "the anticoagulant *solution*." This appears to be referring to the first step in Method B) of claim 1, but this is not clear because there is no clear antecedent termed an "anticoagulant solution," and the composition used in Method A) also contains an anticoagulant. Therefore it is not clear if claims 5-12, reciting only "solution," are meant to further limit Method B) only, or both Method A) *and* Method B).

Applicant might consider rewriting claim 1 as two separate independent claims to avoid this indefiniteness.

Claim Rejections - 35 U.S.C. § 102

Claims 1-4 and 13-15 are rejected under 35 U.S.C. 102(e) as being anticipated by SODEMANN (US 6,166,007).

SODEMANN discloses a compostion comprising taurolidine and citrate as a "lock" to seal a liquid delivery system between hemodialysis sessions. See particularly abstract; example 2; and claim 1.

Claim Rejections - 35 U.S.C. § 103

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over LEHNER (WO 98/28027) in view of REINMULLER (US 5,077,281).

The invention (Method A) is drawn to a method of preventing thrombosis formation on a liquid-containing surface of a liquid-delivery system comprising a regimen of forming a seal in the system containing taurolidine, taurultam, or a mixture thereof and an anticoagulant agent, other than taurolidine or taurultam.

LEHNER discloses flushing a port delivery system with 2 ml of a solution comprising an anticoagulant a thrombosis-preventing amount, 800 IU, of the anticoagulant, heparin. At about 150 IU/mg, the solution would contain about 5.3 mg of heparin. This flushing is followed by sealing the system with 2% by weight of taurolidine for 12 hours. See page 9, lines 8-23. The reference further teaches the replacement of the sealing liquid as needed after use for therapeutic treatment of administration of parenteral nutrition. In the latter case, particularly, this would require replacement of sealing liquid at least about daily.

The process is not explicitly termed "a method for preventing thrombosis formation." However, the reference teaches that taurolidine has the further advantage that it can reduce the adhesiveness of fibrin deposits. See sentence bridging pages 8 and 9. Fibrin deposition leads to thrombosis formation.

LEHNER further does not teach the addition of another anticoagulant agent other than taurolidine, taurultam, or a mixture thereof in the "sealing liquid."

REINMULLER teaches a small genus of taurolin derivatives having bactericidal and coagulation-inhibiting action. This genus includes taurolidine (also known as taurolin) and taurultam, species which are the preferred compounds in the genus. See col 1, lines 40-47 and col 3, lines 27-62. REINMULLER teaches that contact of a solution of taurolin (taurolidine) renders a surface thromboresistant. REINMULLER further teaches the utility of using taurolidine or taurultam together with another anticoagulant agent, such as heparin. See col 4, lines 33-40.

Given that REINMULLER had taught that contact with taurolidine renders a surface thromboresistant, sealing taurolidine in a liquid delivery system is in fact a mthod for preventing thrombosis formation. It would have been obvious to one having ordinary skill in the art at the time the invention was made to seal taurolidine and another coagulant in a liquid delivery system for the purpose of preventing thrombosis formation with a reasonable expectation of success. One of ordinary skill would be motivated to add an anticoagulant for the additive effect. It would be within the scope of the artisan to determine the optimum amount of additional anticoagulant through routine experimentation.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over LEHNER (WO 98/28027) in view of RAAD et al (US 5,688,516).

The invention (Method B) is drawn to a method of preventing thrombosis formation on a liquid-containing surface of a liquid-delivery system comprising a regimen of: (1) first contacting surface with solution containing an anticoagulant agent other than taurolidine or taurultam; (2)

thereafter contacting said surface with a solution containing taurolidine, taurultam, or a mixture thereof; and (3) repeating the contacting steps between delivery of liquids.

LEHNER teaches as set forth above. The reference does not explicitly teach repeating the step of contacting or flushing with anticoagulant (other than taurolidine or tarultam). LEHNER, therefore, teaches two-and-a-half of the three steps of the instant method.

Thrombotic occlusions in the lumen of catheters is a known complication. RAAD teaches that prophylactic flushing of a catheter with heparin to prevent this complication is standard care. See col 1, lines 27-43. RAAD also teaches that other known anticoagulants, such as citrate and hirudin, have utility in antithrombotic prophylaxis and that this type of treatment is beneficial to a variety of medical liquid delivery systems. See col 5, lines 24-35 and col 6, lines 14-27.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the process of treating a liquid delivery system as taught by LEHNER by repeating the anticoagulant flushing step for the additional antithrombotic prophylaxis, as taught by RAAD. One of ordinary skill would reasonably expect thrombosis prevention upon treating the delivery system with two anticoagulants, known to be beneficial for this purpose. It would be within the scope of the artisan to select any appropriate anticoagulant for this purpose.

Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over LEHNER (WO 98/28027) and REINMULLER (US 5,077,281) in further view of ITO et al (US 5,167,960).

LEHNER and REINMULLER teach as set forth above. These references do not teach the full range of anticoagulants recited in claim 14. However, as set forth above, REINMULLER does expressly suggest the use of other anticoagulants.

ITO teaches the use of other thrombogenesis inhibitors, such as hirudin and ticlopidine, in liquid delivery systems. See abstract and col 1, lines 44-50.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a solution of taurolidine, taurultam, or a mixture thereof and any art-disclosed anticoagulant agent, other than taurolidine or taurultam to prevent thrombosis formation in a liquid-delivery system by sealing the system with the solution. It would be within the scope of the artisan to determine the optimum time for treating the system and the optimum concentrations for the method with routine experimentation.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-13 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 14-24 of U.S. Patent No. 6,258,797 in view of RAAD et al (US 5,688,516).

The claims of U.S. Patent No. 6,258,797 are directed to the treating a liquid delivery system by flushing said system with a solution comprising an anticoagulant, specifically heparin, followed by contacting the surface of said system with a solution comprising one of taurolidine or taurultam. Although the method of '797 is described as "preventing or reducing infection," the use of taurolidine and/or taurultam has the inherent property of conferring thromboresistance on a surface. Therefore, the steps set forth in the claims of '797 are not patentably distinct from the instant method. The claims of '797 do not recite repeating the step of flushing with an anticoagulant, but it would be obvious to add this step, as this is the standard of care, taught by RAAD, as set forth above.

Examiner's hours, phone & fax numbers

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leigh Maier whose telephone number is (703) 308-4525. The examiner can normally be reached on Tuesday, Wednesday, or Friday 7:00 to 3:30 (ET).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Johann Richter (703) 308-4532, may be contacted. The fax phone number for Group 1600, Art Unit 1623 is (703) 308-4556 or 305-3592.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 1600 receptionist whose telephone number is (703) 308-1235.

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JAMES O. WILSON
PRIMARY EXAMINER
GROUP 1600

Leigh C. Maier
Patent Examiner
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